

**Technical Analysis
Des-Bee-Dove Mine
PacifiCorp Electric Operations
ACT/015/017
Permit Renewal**

R614-301-100 GENERAL CONTENTS (SW)

R614-301-112 Identification of Interests

PacifiCorp is an Oregon corporation. The permit permittee is PacifiCorp Electric Operations and the mine operator is Energy West Mining Company (page 1-2). J. Blake Webster, PacifiCorp Electric Operations-Fuel Resources, is the mine's resident agent who will accept Service of Process. The names of PacifiCorp's officers and directors are found on pages 1-5 through 1-10. PacifiCorp currently has 10 coal mining and/or reclamation operations permitted in the United States (pages 1-2 through 1-4). The name and address of each owner of the surface and mineral property to be mined (page 1-39) and of each owner contiguous to the permit area (page 1-11 and 1-12) are listed in the permit application. The mine has three MSHA numbers, one assigned to each mine or portal, Deseret, Beehive and Little Dove. The permittee has no option, bid or other interest in any contiguous acreage other than within the permit areas of the Deer Creek Coal Mine and the Cottonwood Coal Mine.

R614-301-113 Violation Information

PacifiCorp has never had a federal or state coal mining permit suspended, revoked or forfeited a performance bond (page 1-13). A list of all violations received by PacifiCorp is provided on pages 1-14 through 1-28.

R614-301-114 Right-of-Entry Information

The documents upon which the permittee bases their legal right to enter and conduct coal mining and reclamation operations on is found on pages 1-29, 1-35, and 1-38 through 1-41. Surface owner consent for severance from surface and coal rights was given by the McKinnon Trust (page 1-29.1 through 1-29.2).

R614-301-115 Status of Unsuitability Claims

The permittee has consulted with federal land agencies and the Division, no lands within or adjacent to the permit area is designated or under study as unsuitable for coal mining and reclamation operations (page 1-30). No facilities or operations will be conducted within 300 feet of an occupied dwelling.

R614-301-116 through 150 Permit Term, Insurance and Maps

The permit application is for a five-year permit term (page 1-31). The Certificate of Liability Insurance is carried by Associated Electric & Gas Insurance Services Limited (pages 1-32 through 1-34). Public notice of permit renewal was made by PacifiCorp for the Des-Bee-Dove Mine (page 1-43).

The permit application package is clear, concise and filed in a format which is acceptable to the Division. A notarized signature by the Permitting Administrator stating that all information in the permit is true and correct is found on page 7.

All maps and plans are of an appropriate scale, and all applicable maps and plans distinguish between operations which occurred prior to August 3, 1977 and prior to issuance of a permit by the Division on August 29, 1985.

COMPLIANCE

The permittee is in compliance with all sections of R614-301-100.

R614-301-200 SOILS (HS)

R614-301-210 Introduction

Approximately 78 acres of disturbance is associated with the Des-Bee-Dove Mine Facility. Disturbed acreage is as follows: Mine area = 20 acres (pre-PL95-87); haul road = 50 acres; sedimentation pond and haul road = 8 acres (page 3-19). Subsoil was salvaged and stockpiled (Plate 3-7) from the sedimentation pond disturbance (page 3-53). Topsoil and/or subsoil was not separately removed from the mine area because initial construction occurred prior to the passage of PL 95-87 (page 3-22). The haul road was constructed without prior approval from the Division and therefore, no topsoil was salvaged. The permittee has proposed the use of substitute topsoil material as a plant growth medium for the reclamation of the mine area and the haul road (page 4-58).

Soil/spoil analyses of the fills within the mine facilities area is described on pages 4-59 and 4-60. Soil sample results of the adjacent undisturbed soils is on pages 2-183 through 2-188; soil sample results from the haul road on pages 2-177 and 2-178; and soil sample results of the adjacent undisturbed soils on pages 2-179 through 2-182.

R614-301-220 Environmental Description

The soils of the Des-Bee-Dove Mine are primarily colluvium and rock outcrops derived primarily from sandstone and shale. The soils tend to be very stony or bouldery, loamy skeletal (calcareous) mixed mesic throughout the profile.

An aridic bordering on a xeric to ustic moisture regime with a mesic temperature regime prevails. Average annual precipitation is between 8-10 inches with the mean annual soil temperature higher than 8°C but lower than 15°C. The topography of the area is gently sloping to steep, ranging from 0% to vertical but typically between 50% to 80% slopes. The aspect ranges from north to south but is generally southeast facing. The soil capability classification ranges from VIIIs-sx to VIIIs-3 non-irrigated.

Under native vegetation erosion hazards associated with these soils, are moderate to severe. The erosion hazard for disturbed soils is high to severe. These soils are generally well drained and range in texture from very gravelly sandy loam to silt loam. The pH of the surface horizon ranges from neutral (7.0) to 8.4. The electrical conductivity (EC) is generally low (<4 mmhos/cm at 25°C), however, outwashes and conical slopes derived from Mancos Shale may have EC greater than or equal to 22 mmhos/cm at 25°C. The depths of reported A horizon ranges from 4-18 inches.

The Des-Bee-Dove Mine soil resource was surveyed at an unreported scale; but, the scale appears to be an Order II. The soils in the vicinity of the disturbance are as follows: lithic ustorthents; xerollic calciorthids.

The major limiting factors for the soils in the vicinity of the disturbance is extremely high growing-season temperatures, low precipitation, high exchangeable sodium, and high salt activity. Hence, the soils are low in nutrient and moisture availability and have poor physical conditions which deter water movement and root penetration.

R614-301-221 Prime Farmland Investigation

An investigation was conducted by the Soil Conservation Service to determine if prime farmland exists within the permit area. Ferris P. Allgood, State Scientist (1983) for the U.S. Soil Conservation Service, determined that the soils in the permit area are too steep and/or above established irrigation systems and therefore, do not meet the requirements for prime farmland (pages 2-224 through 2-227).

R614-301-230 Operational Plan

The disturbance associated with the mine area occurred prior to the passage of PL 95-87 (page 3-22). The disturbance created during the haul road construction was accomplished without prior approval from the Division. Topsoil was not separately salvaged from these areas. The permittee has proposed utilizing substitute topsoil from the surface (top 18-24 inches, page 4-62) of the five major fills of the mine area and the downcast road fill/base material from the haul road (pages 4-58 & 4-62).

As of February 6, 1987, the Des-Bee-Dive Mine was temporarily closed. The mine remains idle; however, prior to the resumption of coal mining activity, the permittee will give six months advance public notification (Page 3-1). The permittee does not anticipate new disturbance during the ensuing five-year permit term (page 3-22). The only activity planned for the next permit term is general maintenance and inspections and implementations of test plots to determine the suitability of the proposed substitute topsoil material (see R614-301-233).

R614-301-233 Topsoil Substitutes and Supplements

The downcast material and fill along the haul road was sampled in 1985 (page 2-177 through 2-178). Results indicate a saline/sodic soil and material which is unacceptable as a plant growth medium for final reclamation when compared with adjacent undisturbed soils (i.e., potential borrow material sampled in 1990) (pages 2-179 through 2-182) and Division Guideline for the Management of Topsoil and Overburden (Table 2).

The permittee has proposed the use of the road fill material as a plant growth for final reclamation (page 4-58). The permittee has prepared and submitted a proposal (letter to Pam Grubaugh-Littig, dated July 31, 1990/Des-Bee-Dove Haul Road Reclamation Study, February 15, 1991) to conduct field site trials to determine the reclaimability of the major fill slope located between stations 131+00 and 142+00 (Plate 5-5). Division review of said proposal will continue and test plots will be implemented in the Fall of 1991.

More favorable plant growth conditions exist from stations 165+00 through 243+18. This material is primarily sandstone parent material with lower slope angles and with adjacent undisturbed pinyon-juniper overstory and greater effective precipitation. However, as indicated by the soil analysis and the poor interim revegetation success along the embankments of the road, the Division finds that additional field site trials or the identification of a borrow site is necessary to insure the reclamation of this portion (including the access road to the sedimentation pond) of the haul road.

The outcome of the aforementioned site trials will greatly influence the reclamation plan for the haul road. Successful techniques as proven by the site trials will only be incorporated into the reclamation plan after Division approval (page 4-82).

The suitability of the five major fills within the mine area (i.e., proposed substitute topsoil material) and the depth of the coal waste soil mantle within the tipple pad must be determined. The original sample set found on pages 4-59 and 4-60 is incomplete and must be compatible with the soil analysis conducted for the undisturbed soils adjacent to the mine area (pages 2-183 through 2-188).

CONDITION R614-301-233-(1) (HS)

Within 45 days of permit renewal, the permittee must submit analyses of the five major fills within the mine area to include sampling procedures outlined on pages 4-100 through 4-102 and provide documentation of the depth of the soil mantle atop the coal waste within the tipple area.

Additionally, for the haul road between stations 165+00 through 243+18, the permittee must identify a borrow site and provide necessary information for the development and reclamation of the site or conduct field site trials to demonstrate the suitability of the Des-Bee-Dove Haul Road fill material as a plant growth medium for final reclamation.

R614-301-234 Topsoil Storage

The only topsoil/subsoil stockpile on the permit area is located adjacent to the sedimentation pond (plate 3-7, sheet 3 of 3). At the time of pond construction, it was determined that no topsoil existed in sufficient quantities to warrant separate removal and storage. Therefore, only subsoil has been stockpiled. Approximately 12,650 yds³ of material has been stockpiled (Map 2-13, sheet 1 of 3). The stockpile has been seeded and is protected by berms, diversions and sediment control structures (page 3-53).

The pond area (4.5 acres) will be covered with the stockpile material at an average depth of 18 inches. Revegetation will proceed as outlined for the haul road (page 4-88).

R614-301-240 Reclamation Plan

As stated before, the reclamation of the mine area and haul road will be contingent upon the results derived from the various revegetation test plots (page 4-7). However, the basic reclamation procedure will not vary substantially from the forthcoming narrative.

All concrete, asphalt and all coal cleaned from the surface of the mine area will be used as coarse backfill and buried against the highwalls and covered with at least four feet of nontoxic- and nonacid-forming material (pages 3-24, 3-27, 3-30, 4-1, and 4-65). Maximum final fill slopes will be equal to or less than 2h:1v (page 4-1).

All asphalt and road base from the haul road will be placed at the north end of the project area and will be covered with four feet of soil removed from the excavation of the drainage channel (page 4-7).

If fill material is suitable as a plant growth medium for final reclamation of the mine area (see R614-301-233), the upper 18-24 inches of fill will be removed and temporarily stored (page 4-62) and protect with a mulch cover (page 4-69). After final grading, the surface of the backfilled material will be in an uncompacted roughened condition. If compacted, smooth surfaces exist, the material will be ripped to eliminate slippage surfaces and promote root penetration (page 4-70). All reclaimed roads will be scarified (page 4-90). The temporarily stored substitute topsoil will be redistributed on the newly graded surface 6-12 inches deep (page 4-62). Following redistribution of topsoil, samples will be taken (2 samples/acre @ 1 foot) and analyzed (page 4-101) for fertilizer recommendation. Fertilizer will then be applied at the recommended rates (page 4-70). The site will then be hand broadcast with seed (seed mixture page 4-76) and raked to cover seed. Following seeding, the area will be covered with hay mulch (2 tons/acre) and netted or covered with erosion control blanket (page 4-77). If rills and/or gullies on regraded surfaces develop that are greater than nine inches, the channels will be filled, regraded or otherwise stabilized and the areas will be reseeded.

The revegetation plan for the haul road may be revised to incorporate the results of the test plot studies; however, reclamation will follow the techniques and methodologies outlined above, except where noted below.

The haul road Pinyon-Juniper vegetation type seed mixture and the haul road/sediment pond salt desert shrub vegetation type seed mixture are described on pages 4-82 and 4-83. After backfilling and grading and installation of contour furrows (page 4-7) the material which ends up at the surface will be treated with soil enhancer (i.e., Land Tech Irish Peat at 250 lbs/acre) (page 4-84). The area will be hydroseeded. Fertilizer will be applied at the following rate: Ammonium Nitrate - 200 lbs/acre; Triple Super Phosphate - 300 lbs/acre; Sulfur - 1000 lbs/acre. A wood fiber hydromulch with tackifier will be applied at 2000 lbs/acre and 50 gal/acre respectively.

COMPLIANCE

The permittee is in compliance with all sections of R614-301-200, except for condition R614-301-233-(1) (HS).

R614-301-300 BIOLOGY (SW)

R614-301-320 Environmental Description

The Des-Bee-Dove Mine permit area covers five vegetative communities (page 2-159). The Pinyon-Juniper is the largest covering 1,480 acres or 53 percent of the area. The Pinyon-Juniper community is also the largest vegetative type which has been disturbed, 70 percent of the disturbance or 55 acres. There are 640 acres of sagebrush and 607 acres of mixed-Conifer communities within the permit area, although none of these vegetation typed are located within the disturbed area. The Salt-Desert shrub community, which only makes up three percent of the permit area vegetation, makes up 30 percent of the disturbed area. One small Aspen community is within the permit area, this area is only three acres in size.

The Soil Conservation Service estimated productivity of the Pinyon-Juniper and Salt-Desert shrub communities at the Des-Bee-Dove Mine area. Potential production of the Pinyon-Juniper community is 1,000 pounds per acre and only 200 pounds per acre in the Salt-Desert shrub community (page 2-154). Low productivity on these sites is not unexpected due to low rainfall amounts and the southern exposure of the mine area.

A letter from the U. S. Fish and Wildlife Service in 1980 states, "To the best of our knowledge, no endangered or threatened plant species or critical habitat or threatened or endangered wildlife species occur in the disturbed areas of the subject mining operations" (page 2-196). A letter sent to the U.S. Fish and Wildlife Service by the Division requesting current confirmation of this statement was signed on March 26, 1991. The permittee states that there has been winter sightings of Bald Eagles flying above the permit area.

The lower portion of the permit area haul road is classified as high priority deer winter range (Map 2-18). Critical elk winter range is located above the disturbed area, within the permit area on East Mountain. The entire escarpment area along East Mountain is designated as a raptor nesting zone (Map 2-178). This includes the mine disturbance area. Three golden eagle nest groups are found within the permit area.

The location and boundary of the reference areas are shown on Maps 2-12 and 2-13. These maps also delineate vegetative communities within the disturbed area boundary and within and adjacent to the permit area.

R614-301-330 Operation Plan

Most of the mine area at the Des-Bee-Dove Mine was disturbed prior to August 3, 1977. However, the permittee has stabilized all fill slopes within the mine facilities area with planting an interim seed mixture (page 4-164). The permittee has

committed to control erosion on disturbed areas by vegetative planting (page 4-66). The seed mixture, seedbed preparation, fertilizer and mulch plans for interim revegetation are found on pages 4-66 through 4-68.

Planned subsidence is expected through pillar extraction. Subsidence from both coal seams should not exceed 20 feet (page 4-150). The permittee has committed to replace any water, or any other resources, lost due to subsidence (page 4-156). Historically, the mine has had escarpment failure under the Castle Gate Sandstone (page 4-157). Future mining plans provide for greater protection of the escarpment. The golden eagle nests, 56B and 87C, are located within future proposed mining areas. Both these nest sites overlie barrier pillars which will remain unmined (page 4-161) as protection from subsidence.

Critical elk winter range and other areas on East Mountain are generally unaffected from mining disturbance (page 4-160). Subsidence monitoring is conducted annually to detect any such disturbance. No prime fisheries are located within the permit area, however hydrologic monitoring and sediment treatment continues on the properties. The transmission line to the mine provides phase-to-phase and phase-to-ground clearances to preclude electrical contact of raptors as agreed by the U. S. Fish and Wildlife Service (page 4-161). The haul road runs through high priority deer winter range. Employees are shown a video produced by the Utah Division of Wildlife Resources (UDWR) to reduce the disturbance and killing of wildlife (page 4-162). Training is also provided on how to avoid deer-vehicle collisions as well as posting signs on the haul road (page 4-163). Personnel will also be instructed on the value of snake dens and reporting such locations to UDWR.

R614-301-340 Reclamation Plan

The permittee has developed a revegetation schedule which should allow sufficient times to complete all tasks (page 4-75.1).

Three different seed mixtures are proposed for final reclamation. The seed mixtures are the mine site - Pinyon-Juniper vegetation type (page 4-76), haul road - Pinyon-Juniper vegetation type (page 4-82), and haul road sediment pond - Salt-Desert shrub vegetation type (page 4-83).

The mine site seed mixture will be applied by broadcasting methods. The area will be raked to cover the seed and fertilizer. Areas which have been hand broadcast seeded will be covered with 2 tons per acre mulch and netting or erosion control blanket. Following hydroseeding, 2,000 pounds mulch with tackifier will be applied. The permittee was asked to delineate where each mulch treatment would be applied. The permittee felt that the requirements of the regulation had been met without this designation (response to technical deficiency, letter dated February 7, 1991). The

spring following planting, 200 shrub and tree species per acre will be planted (pages 4-76 through 4-79).

The appropriate haul road seed mixtures will be applied with a hydroseeder. No plans are stated to try to incorporate the seed by raking. The request was made to the permittee by the Division to drill seed accessible area along the haul road. The permittee's response was that the request is not supported by the regulations (letter dated February 7, 1991). Fertilizer and sulphur will be applied by the hydromulcher. Hydromulch will then be applied at the rate of 2,000 pounds per acre (pages 4-82 through 4-84).

Final reclamation will restore drainage channels and revegetate the disturbed area. Rock piles of varying sizes will be left as small mammal habitat. Some of the revegetation seed mixture is similar to the adjacent undisturbed community. The mine site seed mixture is primarily designed for erosion control on steep slopes, and not for wildlife value. However, if sufficient plant diversity is established, sufficient food and cover for wildlife should be obtained (page 4-165).

The plan for planting trees and shrubs at the mine site calls for clumping and layering in order to optimize cover value (page 4-78). Shrubs seeded along the haul road have proven nutritional value for wildlife species, particularly deer in this high priority winter range area. Shrubs seeded in the Salt-Deseret shrub community along the haul road were primarily selected for the ability to grow in Mancos Shale. Nutritional value was also selected for in some shrubs however, test plot information will determine if the shrubs will grow in this soil type.

R614-301-350 Performance Standards

The proposed vegetative cover is designed to be diverse, effective, permanent and capable of stabilizing the soil surface. However, two problem areas exist in the disturbed area:

- Area 1 In final reclamation the Pinyon-Juniper mine site disturbance area will have topsoil applied of which some has been seeded with Crested Wheatgrass and Smooth Brome. This potential seed bank of Crested Wheatgrass and Smooth Brome could establish plants on the final reclaimed area. The permit (page 4-73 through 4-75) justifies the use of these species due to deep rooting depth (Smooth Brome) and drought resistance (Crested Wheatgrass). These are the characteristics which tend to make these species aggressive and out compete the native species. This could potentially reduce diversity in this area. However, the U. S. Forest Service insists that this seed mixture is consistent with the management plan for the area (page 4-66).

Area 2 The Salt-Desert shrub disturbed area along the haul road is in the Mancos Shale formation. The soil is high in clays, erosive and high in salts. Some steep slopes also occur in this area. Some success has occurred from interim seeding on gentle slopes. However, to date, no success has been achieved from interim seeding on the steeper slopes. Deep erosion gullies have formed on the road fill slopes. Currently, a test plot was installed by the operator (in 1989) to test a synthetic emulsion for erosion control and the seed mixture. Additional test plots are scheduled to be installed in the Fall of 1991.

Total vegetative cover of the Salt-Desert shrub reference area is 26 percent. If 26 percent cover is achieved on the reclaimed Mancos Shale steep slopes, this still may not be sufficient vegetative cover to control erosion. The reclaimability of this area to predisturbance conditions is yet to be proven. These areas were approved by OSM in 1985.

The disturbed areas will be seeded in the Fall. Fall is the locally accepted season of planting in this area.

Success standards for Phase II bond release will be judged by comparing the reclaimed areas to reference areas and pre-determined shrub density standards. Two reference areas were selected; a Pinyon-Juniper and Salt-Desert shrub. Reference areas are shown on Map 2-13. Baseline vegetative data for the two reference areas are detailed in a consultants report on pages 2-145 through 2-166 and 2-168. Vegetative cover, shrub and tree density and species lists were measured and compiled for these sites.

The postmining land use is for wildlife and livestock grazing. Therefore, diversity, cover productivity, and shrub stocking rates will be used to determine revegetation success using Division accepted statistical comparisons and confidence intervals (page 4-85). The period of extended responsibility will continue for a minimum of ten years. Quantitative vegetation monitoring will occur in years 2, 3, 5, 9 and 10. Productivity measurements will be taken in years 9 and 10 (pages 4-80 through 4-82 and 4-85 through 4-87) and reference area data in year 10.

COMPLIANCE

The permittee is in compliance with all sections of R614-301-300.

R614-301-400 LAND USE AND AIR QUALITY (SW)

R614-301-411 Environmental Description

Mining began in 1898 in an unnamed canyon in which the Des-Bee-Dove mines are now located. Mining has continued off and on until the present (page 3-1). Utah Power and Light purchased the mine from the LDS church in 1972. Both the Blind Canyon Seam (map 1-3) and Hiawatha Seam (map 1-3) were mined prior to August 3, 1977. Additionally, the haul road was built without Division approval and a cessation order was issued. As such, no pre-mining productivity or land conditions are available.

However, reference areas are representative of the premining condition of the land. Productivity data is given on page 2-154, and the ecological condition of these reference areas are rated as fair. Land uses within the permit area, as described by the land use agencies, are recreation, forestry and mining, non-rangeland, grazing, and sand and gravel, as designated on map 2-17A. A discussion on livestock and wildlife stocking rates is given on pages 2-220 and 2-221.

Two cultural resource surveys were conducted for the permit area. One survey in 1980 for the general permit area (pages 2-1 through 2-131) and another for the haul road (pages 2-134 through 2-142). No significant finds were reported by the consultant. A letter from the Utah Division of State History (page 2-132), dated August 8, 1990, confirms the consultants report.

R614-301-412 Reclamation Plan

The postmining land use is grazing and wildlife habitat (page 4-106). By regrading to approximate original contour and after revegetation, the wash area should provide equivalent vegetative cover. Other areas at the mine site will be regraded to approximate original contour. However, terraces will be incorporated into the landscape where once steep, eroded slopes were located (page 4-105). These terraces will provide enhanced vegetative cover from the original area and flat areas for the wildlife and livestock. The reclamation of the road system will leave a cattle trail for access to the top of East Mountain. The cattle trail will allow continued use of the area by cattlemen, sportsmen and property owners. The trail will exclude vehicle use. The absence of water limits the potential of other uses (page 4-106).

Land surface owners are the U.S. Forest Service, Bureau of Land Management and the State of Utah Division of Lands and Forestry. The right-of-way for the surface use of these lands state that each site will be restored to their natural state (page 4-107). The permittee believes that the reclamation of these lands is in compliance with the right-of-way and postmining land usage.

COMPLIANCE

The permittee is in compliance with all sections of R614-301-400.

R614-301-500 ENGINEERING (JK)

R614-301-512 Certification (See R614-301-731.700, .730, and .740)

Most cross-sections, maps, plans and engineering designs which require certification under this section have been certified by a qualified, registered, professional engineer (page 6 and certification stamps on individual maps and plans).

R614-301-513 Compliance with MSHA Regulations and MSHA Approvals

There are no impoundments which meet the size or volume criteria of 30 CFR 77.216(a), no coal processing waste dams or embankments, and no refuse piles at this mine site.

The mine was idled in February of 1987. At that time, all openings to the surface from underground were temporarily sealed and posted with warning signs, in accordance with 30 CFR 75.1711 (page 3-1). All openings will be maintained in this temporarily-sealed condition throughout the permit period. The Division will be given 30 days notice if and when the mine reopens.

R614-301-514 Inspections

There are no excess spoil disposal facilities or structures and no refuse piles which require inspection or certification.

The permittee commits to making quarterly inspections of the sediment pond and to include these inspections in the Annual Report (page 3-20). This commitment, however, is incomplete.

CONDITION R614-301-514.300-(1) (JK)

Within 45 days of permit renewal, the permittee must provide, for inclusion in the Operation Plan, a commitment to do the following:

- 1) Inspection of the sediment pond quarterly, either by a professional engineer or else by a specialist experienced in the construction of impoundments (514.310);

- 2) Certification of the quarterly report promptly after each inspection by a qualified, registered, professional engineer and to send a copy of the report to the Division (514.312); and
- 3) Annual certification of the sediment pond by a qualified, registered, professional engineer and inclusion of the certification in the Annual Report.

R614-301-515 Reporting and Emergency Procedures

In the event of either a slide or an impoundment hazard, the permittee is committed to notify the Division promptly and to comply with any remedial measures required to protect and ensure the public health and safety (page 3-18).

In the event that temporary cessation of operations is to extend beyond 30 days, the permittee is committed to notify the Division and to comply with all of the requirements of R614-301-513.300 (page 3-18).

R614-301-516 Prevention of Slides in Surface Coal Mining and Reclamation Activities

Not applicable.

R614-301-520 Operation Plan

R614-301-521.110 Previously Mined Areas

Maps 1-3 (Mine Permit Area with Mine Development - - Beehive/Little Dove Mine) and 1-4 (Mine Permit Area with Mine Development - - Deseret Mine) show the location and extent of known workings of active, inactive, and abandoned underground mines within the permit and adjacent areas.

R614-301-521.120 Existing Surface and Subsurface Facilities and Features

Maps 3-6 and 3-7 (Surface Facilities Location Map), and Map 3-10 (Existing Earthen Structures) correctly show the locations of buildings, facilities, features, and roads within and adjacent to the permit area.

R614-301-521.130 Landowners and Right of Entry and Public Interest Maps

Maps 1-1 (Coal Ownership Map) and 1-2 (Surface Ownership Map) correctly show the boundaries and present owners of all lands within or contiguous to the permit area as well as those lands upon which the permittee has the legal right to enter and begin coal mining operations.

R614-301-521.140 Mine Maps and Permit Area Maps

Maps 1-3 (Mine Permit Area with Mine Development - - Beehive/Little Dove Mine), 1-4 (Mine Permit Area with Mine Development - - Deseret Mine), 1-5 (Disturbed Area Boundary Map), 3-10 (Existing Earthen Structures), 4-1 (Final Reclamation Map), and 4-3 (Disturbed Area Cross Sections) correctly show all areas which will be affected by mining and reclamation operations. A planimeter check of the permit area and disturbed area as represented by the maps shows them to be very close to the respective values of 2847 acres and 74.5 acres calculated by the permittee.

R614-301-521.150 Land Surface Configuration Maps

Maps 3-6 and 3-7 (Surface Facilities Location Map), 3-8 (Surface Drainage Map), and 3-10 (Existing Earthen Structures) adequately represent the existing land surface configuration of the area affected by surface operations and facilities.

R614-301-521.160 Maps and Cross Sections of the Proposed Features for the Proposed Permit Area

Maps 1-2 (Surface Ownership Map), 1-5 (Disturbed Area Boundary Map), and 3-6 and 3-7 (Surface Facilities Location Map) show all buildings and facilities, bonded areas, coal loading and storage areas, noncoal waste storage areas, and explosive storage facilities.

R614-301-521.170 Transportation Facilities Maps

Roads and conveyors are the only transportation facilities at this mine. All are shown on Maps 3-6 and 3-7 (Surface Locations Map) and described in detail in the text of the mine plan (pages 3-43 through 3-46).

R614-301-521.200 Sign and Markers Specifications

The permittee commits to maintaining mine and permit identification signs, perimeter markers, buffer zone markers, topsoil markers, and explosive warning signs in the appropriate places. All signs will be made of thin sheet metal and each type will be of a uniform design (pages 3-17 through 3-18).

R614-301-522 Coal Recovery

The mining operation will involve only room-and-pillar methods. Pillars will be extracted, except in those areas where they may be needed for roof support. Only barrier pillars and strata control coal will be left in place. Using such mining methods, the permittee expects an overall coal recovery rate of just over 50%. The permittee

commits, moreover, to work with the Bureau of Land Management to extract the maximum amount of economically recoverable coal (pages 3-7 through 3-9).

R614-301-523 Mining Methods

The application contains a full description of the proposed mining operation. Room-and-pillar methods with continuous mining machinery will be employed. The mining plan will be based on a six-entry system, with 20-foot entries on 80-foot centers. Three to five entries will be driven in development sections, and these entries will be 20-feet wide and will be driven on 50-foot X 100-foot centers. Using these mining methods, the permittee expects to reach an annual production of approximately 800,000 tons (pages 3-7 through 3-17).

R614-301-524 Blasting and Explosives

Since the mine site is already fully developed, the permittee does not foresee the need for any surface blasting. However, should the need for explosives arise, the permittee commits to develop a blasting plan in accordance with this section (Appendix VI and page 3-46).

R614-301-525 Subsidence

The application contains a subsidence control plan which includes an inventory of the area likely to be affected by subsidence, a description of methods of subsidence control to be employed, plans for mitigation of subsidence-caused damage, and details of a subsidence monitoring plan (pages 4-148 through 4-160).

The area likely to be affected by subsidence contains renewable resources in the form of springs, water seeps, grazing land, timber, and wildlife. Streams in the area are all ephemeral or intermittent. No structures such as buildings, roads, powerlines, oil or gas wells, pipelines, or utility structures are found in the area (page 4-148).

Room-and-pillar mining with pillar extraction is, by definition, a method of planned and controlled subsidence. The permittee expects, therefore, that any subsidence will occur as a gradual and uniform lowering of the land surface with little effect on the resources of the area (page 4-149).

The permittee commits to mitigate any material damage caused by subsidence. Such mitigation will consist of repair of subsidence cracks, repair of fences or stock ponds, and restoration of lost or diminished water resources (pages 4-155 through 4-157).

Subsidence was originally monitored using a combination of conventional surveying and aerial photogrammetry. However, since 1987, aerial photogrammetry has been the sole method of gathering subsidence data. Subsidence data are gathered from a network of control points which are established over each panel. The data are compiled in both map and table form and are submitted to the Division in the Annual Report. Subsidence monitoring will continue until subsidence has ceased, as agreed upon by both the permittee and the Division (pages 4-150 through 4-155).

R614-301-526 Mine Facilities

The application contains a narrative explaining the construction, use, maintenance, and removal of all surface facilities. All facilities are listed, along with their respective dates of construction, on page 3-57. Individual descriptions of all facilities are located throughout the text of Part 3. All facilities are located on Maps 3-6 and 3-7 (Surface Facilities Location Map), and photographs of all facilities are found in Appendix IX.

The permittee commits to operating and maintaining all facilities in accordance with R614-301. All facility plans are on file and available for public inspection at PacifiCorp Electric Operations office in Salt Lake City, Utah (pages 3-19 through 3-72).

R614-301-527 Transportation Facilities

There are two primary roads and no ancillary roads in the permit area. The two primary roads are the mine access road and the Des-Bee-Dove/Wilberg junction road. The mine access road begins at the lower end of the mine property and ends in the area of the Beehive portal. It is approximately 6100 feet in length. The Des-Bee-Dove/Wilberg Haul Road begins near the lower end of the property, on Danish Bench, winds past the sedimentation pond, and ends at its junction with the Wilberg road. It is approximately 2.8 miles long (pages 3-43 through 3-45).

Seven conveyors are used in the coal handling and sizing process. They are (1) the Little Dove Conveyor, (2) the Transfer Reclaim Conveyor, (3) the Deseret Conveyor, (4) the Main Stockpile Feed Conveyor, (5) the Auxiliary Stockpile Feed Conveyor, (6) the Tipple Feed Conveyor, and (7) the Tipple Process Conveyor. All conveyors are 42 inches in width except for the Tipple Feed Conveyor, which is 36 inches in width.

The Little Dove Conveyor delivers coal from the Little Dove portal to the stacking tube transfer, from the base of which it is delivered to the Deseret transfer by the Transfer Reclaim Conveyor. The Deseret Conveyor delivers coal to the Deseret transfer from both the Deseret mine and the Beehive mine via an underground transfer.

Two conveyors leave the Deseret transfer: the Main Stockpile Feed Conveyor and the Auxiliary Stockpile Feed Conveyor. The Main Stockpile Feed Conveyor delivers coal from the Deseret Transfer to the Main Stockpile by way of the picking table and the large concrete surge bin. The Auxiliary Stockpile Feed Conveyor delivers coal from the Deseret transfer to the upper coal storage pile, which lies next to the Main Stockpile and on the same earthen pad.

The Tipple Feed Conveyor takes coal from the base of the Main Stockpile to the Tipple and the Tipple Process Conveyor. The Tipple Process Conveyor, of course, is simply the internal tipple conveyor system (pages 3-45 through 3-46).

R614-301-528 Handling and Disposal of Coal, Overburden, Excess Spoil, and Coal Mine Waste

Coal is carried to the tipple from the mines by the conveyor system described in Section 527 (Transportation Facilities) above. It is sized and sorted in the tipple process. It is then loaded into trucks at the tipple and carried from there to its various destinations, primarily the Hunter Power Plant (pages 3-26 through 3-27).

Little, if any, overburden or spoil is now produced at this mine. That which was produced in the past was produced before 1977 and was incorporated into the various earthen fill structures and will be used as fill in final reclamation (pages 3-22).

No coal processing waste is produced as coal is not washed at this site.

Noncoal mine waste is gathered in concrete trash bins near the mine portals and in a pile below the tipple. As required, the noncoal waste is hauled from these bins to a state landfill for disposal (page 3-28).

R614-301-529 Management of Mine Openings

This mine has been idle since February 6, 1987. All mine openings have been sealed with temporary seals. All openings have, in addition, been fenced and posted with warning signs to prevent entry by unauthorized persons or by wildlife (pages 3-1 and 3-6). This temporary closing of the portals is in accordance with 30 CFR 75.1711-3.

R614-301-530 Operational Design Criteria and Plans

R614-301-532 Sediment Control

The total disturbed area of the mine site, including the sedimentation pond, is only 74.5 acres. Because of the steep topography and lack of space, the area designed for runoff collection and sediment control is almost 300 acres.

Runoff from both disturbed and undisturbed areas is collected by the drainage system and routed to the sedimentation pond. The drainage system consists of berms and ditches which catch the runoff from the pad areas and of underground culverts which collect this runoff, carry it beneath the permit area, and discharge it into the main channel of the canyon. The runoff follows the main channel then enters a large 72-inch diameter culvert which carries it beneath the Des-Bee-Dove/Wilberg Haul Road, and discharges into the sedimentation pond just south of that road. The entire runoff collection system, including the sedimentation pond, is designed to completely handle a 10-year, 24-hour storm event (pages 3-33 through 3-42 and 3-51 through 3-55).

Sewage from the office and bathhouse is collected in a 2500-gallon septic tank just south of the office complex. Treated effluent from the septic tank goes through a 6-inch line to a leach field near the tippie (page 3-38).

Areas, the runoff from which cannot be routed to the sedimentation pond, are designated as Alternative Sediment Control Areas (ASCAs). These areas are listed in Table 7, page 3-40. The sediment control for these areas consists of silt fences, straw bales, gravel filter dikes, berms, and catch basins. The total ASCA area for the mine site is 1.24 acres (pages 3-38 through 3-40).

In addition to the sediment control measures already mentioned, the permittee commits to contemporaneous reclamation and revegetation of denuded areas (pages 3-38 through 3-42).

R614-301-533 Impoundments

To meet State and Federal effluent limitations, a single sedimentation pond was constructed in 1979. The pond has a capacity of 19.8 acre-feet, which is adequate to completely contain a 10-year, 24-hour storm event. The pond is partly incised and partly banked. It lies south of the mine site in the bottom of the main channel of the canyon (pages 3-52 through 3-55 and Appendix VIII).

The sediment pond was analyzed for static and seismic stability by the firm of Chen Northern, Inc. in August of 1990. Chen Northern used, for the analysis, a standard rotational failure model (Bishop's Simplified Method of Slices). The pond embankments were found to have a minimum static factor of safety of 1.65 and a minimum seismic (pseudo-static with acceleration of 0.1g) factor of safety of 1.28. These figures compare favorably with the respective required minimum values of 1.5 and 1.2 (Appendix III).

R614-301-534 Roads

There are two primary roads and no ancillary roads in the permit area. The two primary roads are the mine access road and the Des-Bee-Dove/Wilberg junction road. The mine access road begins at the lower end of the mine property and ends in the area of the Beehive portal. It is approximately 6100 feet in length. It is paved below the office/bathhouse/warehouse pad and gravel surfaced above there. Its average grade is about 10%. Plans, profiles, and cross-sections for the mine access road are found in Map 3-9 (pages 3-43 through 3-44).

The Des-Bee-Dove/Wilberg Haul Road begins near the lower end of the property, on Danish Bench, winds past the sedimentation pond, and ends at its junction with the Wilberg road. It is approximately 2.8 miles long and is paved over its entire length. Plans, profiles, and cross-sections for the Des-Bee-Dove/Wilberg junction road are found in Appendix XIV (pages 3-43 through 3-44).

The road embankments were analyzed for static stability by the firm of Chen Northern, Inc. in August of 1990. Chen Northern used, for the analysis, a standard rotational failure model (Bishop's Simplified Method of Slices). The embankments were found to have a minimum static factor of safety of 1.72. This figure compares favorably with the required minimum value of 1.3 (Appendix III).

R614-301-535 Spoil

No spoil is now produced at this mine. Spoil which was produced in the past was produced before 1977 and was incorporated into the various earthen fill structures and will be used as fill in final reclamation (page 3-22).

R614-301-536 Coal Mine Waste

Coal mine waste, including sedimentation pond cleaning waste, is disposed of in a 16-acre waste rock disposal facility which lies just west of the Cottonwood/Wilberg haul road. This facility is shared with the Cottonwood/Wilberg Mine and was permitted in 1990 as a major revision of the Cottonwood/Wilberg permit (ACT/015/019).

The waste rock disposal facility is essentially a head-of-hollow fill which lies at the head of an ephemeral wash near the base of a cliff. Waste rock is placed in the fill and compacted in 10-foot lifts. As each lift is being filled, its out slopes are covered with topsoil and revegetated. This cycle of compaction and contemporaneous reclamation will continue until the design capacity of the entire facility is reached (page 3-43 and Cottonwood/Wilberg Waste Rock Storage Facility Volume, ACT/015/019).

R614-301-537 Regraded Slopes

See R614-301-533 (Backfilling and Grading) below.

R614-301-540 Reclamation Plan

R614-301-542 Narratives, Maps and Plans

542.100 Reclamation Timetable -- In accordance with this section, the PAP includes a detailed timetable for the completion of each major step in the reclamation plan. The timetable shows the time estimated for the completion of each major step in reclamation as if that step were an operation in itself. Most of the reclamation operations, however, will be conducted concurrently rather than consecutively. Thus, the initial phase of reclamation, which will involve the largest proportion of reclamation activities -- and which will include removal of facilities, portal sealing, backfilling and grading, disposal of toxic- and acid-forming materials, drainage channel installation, and revegetation -- is expected to take approximately 105 days. Reclamation of the Des-Bee-Dove/Wilberg Haul Road and the sediment pond will be accomplished five years into the reclamation period and is expected to take approximately 70 days (pages 4-109 through 4-115).

542.200 Backfilling Plan -- In accordance with this section, the PAP includes a plan for backfilling, soil stabilization, compacting and grading (see R614-301-553 "Backfilling and Grading").

542.300 Final Surface Configuration Maps -- Map 4-1 (Final Reclamation Map), which includes five sheets, shows the planned final surface configuration with contour maps (sheets 1, 2, and 3) and cross-sections (sheets 4 and 5). These sheets, however, do not accurately represent the final surfaces, or the required and available volumes of material for the various earthwork operations. In addition, Map 3-10 (Existing Earthen Structures), which is tied to Map 4-1, does not clearly show what material will be displaced. These deficiencies were discussed in a May 29, 1991 meeting between Jesse Kelley of the Division and Blake Webster of PacifiCorp Electric Operations.

CONDITION R614-301-542.300-(1) (JK)

Within 45 days of permit renewal, the permittee must revise and submit the following text and maps for inclusion in the PAP:

- 1) Map 3-10 (Existing Earthen Structures) must be modified to show, by shading, those areas which are used in estimating volumes of material which will contribute to the backfilling of highwalls, portal faceups, and the bathhouse/warehouse cut. This map must also show, by

crosshatching, highwalls, portal faceups, and other areas which will receive fill material.

- 2) Map 4-1 (Final Reclamation Map), sheet 2, must be modified to accurately show the anticipated final surface configuration of the present earthen fill structures.
- 3) Map 4-1 (Final Reclamation Map), sheet 5, must be modified to correspond to Map 3-10, i.e., it must show those areas that will receive and those that will contribute fill material with the same shading and crosshatch scheme used on Map 3-10.
- 4) Accurate cross-sections of the bathhouse/warehouse pad must be added to Map 4-1 (Final Reclamation Map), sheet 4. These cross sections must demonstrate that there is sufficient material available at the edge of the bathhouse/warehouse pad to completely backfill the pad, when that material is combined with the material that will be contributed by the other fill structures.
- 5) Earthwork quantities summarized on page 4-6 must be modified to verify the recalculated volume estimates as a result of the map and cross section changes.

542.500 Timetable and Plan for Sediment Pond Removal -- In accordance with this section, the PAP includes a plan and timetable for removal of the sediment pond. Removal of the sediment pond will take place five years after the start of the reclamation period. The pond will first be drained and allowed to dry. It will then be broken down and backfilled to achieve the original contour of the area and reestablish the original drainage (pages 4-88 through 4-89 and Map 4-1, sheet 3).

542. 600 Roads -- In accordance with this section, the PAP includes plans for reclaiming all roads. There are two primary roads: the Portal Access Road and the Des-Bee-Dove/Wilberg Haul Road.

The portal access road will be reclaimed during the initial phase of reclamation. The asphalt surface will be removed and buried at the base of the bathhouse/warehouse fill (page 4-132). The road surface will then be ripped, covered with topsoil, and revegetated (pages 4-89 through 4-90). The road, in its roughened condition, will be left as a cattle trail to East Mountain as part of the postmining land use of grazing and wildlife habitat (pages 4-106 through 4-107).

The Des-Bee-Dove/Wilberg Haul Road will be left in place during the first five years of the reclamation period to provide access to the sediment pond. At the time of sediment pond removal, the road will also be reclaimed. The asphalt surface will be

removed and covered with at least four feet of inert material at the north end of the road. All culverts will then be removed and the drainages restored. The road will then be backfilled and graded with material displaced during its construction and revegetated (pages 4-7 through 4-9 and 4-126 through 4-127).

542.700 Final Abandonment of Mine Openings and Disposal Areas -- All portals have been fenced and posted to prevent entry of wildlife or unauthorized persons. During reclamation, all portals will be sealed with concrete block walls and backfilled with at least 25 feet of noncombustible fill material. Since the mine workings are down dip from the portals, no hydrologic seals or drainage structures will be necessary (page 4-1 and Figure 1 of Chapter 4).

No fills, embankments, or other structures for disposal of spoil, coal mine waste, or noncoal mine waste are present at this site. Spoil and underground development waste were incorporated into the various earthen fills when the mine was opened, which was prior to 1977. These materials will be used in the backfilling and grading of the site during final reclamation.

542.800 Reclamation Cost Estimate -- In accordance with this section, the PAP contains a detailed estimate of reclamation costs upon which the bond amount is based (pages 4-109 through 4-147). The total estimated reclamation cost is \$1,254,519 (1985 dollars). The total bond amount presently posted is \$1,837,712. Using the Means Historical Cost Index escalation factor of 1.84% (1990), the original total estimated reclamation cost of \$1,254,519 equates to \$1,505,432 (1995 dollars). Thus, the present bond amount is adequate.

The reclamation cost is complete and represents the cost of final reclamation.

R614-301-550 Reclamation Design Criteria and Plans

R614-301-551 Casing and Sealing of Underground Openings

All portals have been fenced and posted to prevent entry of wildlife or unauthorized persons. During reclamation, all portals will be sealed with concrete block walls and backfilled with at least 25 feet of noncombustible fill material (page 4-1 and Figure 1 of Chapter 4). This is consistent with MSHA, 30 CFR 75.1711 and represents sound engineering procedure.

Since the mine workings are down dip from the portals, no hydrologic seals or drainage structures will be necessary.

R614-301-552 Permanent Features

No small depressions or impoundments of any kind will be retained after final reclamation.

R614-301-553 Backfilling and Grading

There are eight areas where backfilling and grading will take place. They are (1) the Beehive/Little Dove Portal Area, (2) the Deseret Portal Area, (3) the Stockpile Area, (4) the Tipple Pad, (5) the Bathhouse/Warehouse/Parking Area, (6) the Portal Access Road, (7) the Des-Bee-Dove/Wilberg Haul Road, and (8) the Sediment Pond Area. These areas will be graded and/or backfilled as follows:

1) Beehive/Little Dove Portal Area

This is a fill area at the head of the canyon. Material from the fill will be used to completely backfill the highwall and the portals. Some surplus material will also go into the Bathhouse/Warehouse/Parking fill. The fill will then be excavated to bedrock to restore the drainage. The maximum slope will be 2h:1v (pages 4-3, 4-4, 4-6, 4-121, Plates 3-10 and 4-1).

2) Deseret Portal Area

This is a fill area just below the Beehive/Little Dove Portal Area. Material from the fill will be used to completely backfill the highwall and the portals. Some surplus material will also go into the Bathhouse/Warehouse/Parking Fill. The fill will then be removed to bedrock to restore the drainage (pages 4-3 and 4-6, Plates 3-10 and 4-1).

3) Stockpile Area

This is a fill area just below the Deseret Portal Area fill. The area has no highwalls or portals. Material from the fill will be pulled back to fill the area. Some surplus material will also go into the Bathhouse/Warehouse/Parking fill (pages 4-3 and 4-6, Plates 3-10 and 4-1).

4) Tipple Pad

This is the largest of the earthen fill structures. The outslope of the structure was cut back in 1984 to a slope of 2h:1v in order to improve stability and raise the factor of safety above the required 1.5 (R614-301-537.230). This fill, which was constructed before 1977, constitutes a "settled and revegetated" fill under R614-301-537.200 and, as such, will not be removed. Instead, the drainage will be established around the fill by way of a riprap channel and will descend the face of the fill by way of a large riprap fan (pages 4-4, 4-5, 4-92, Plate 3-10 and 4-1).

The material in the Tipple Area Fill will be characterized by subsurface sampling during the summer of 1991 (see Condition R614-301-233). This will serve to determine whether or not the fill is made up of acid- and toxic-forming material (pages 4-3, 4-5, 4-91, Plates 3-10 and 4-1).

5) Bathhouse/Warehouse/Parking Area

This is a large cut and fill structure that lies southwest of the Tipple Area. It will be completely backfilled and terraced using material from its outslope as well as material borrowed from the other fill structures. The maximum slope will be 3h:1v (pages 4-4, 4-5, 4-6, 4-122 through 4-125, Plate 3-10 and 4-1).

6) Portal Access Road

This is the main road through the property from the entrance gate to the Beehive/Little Dove Portal Area. It will be reclaimed during the initial phase of reclamation. The asphalt surface will be removed and buried at the base of the bathhouse/warehouse fill (page 4-132). The road surface will then be ripped, covered with topsoil, and revegetated (pages 4-89 through 4-90). The road, in its roughened condition, will be left as a cattle trail to East Mountain as part of the postmining land use of grazing and wildlife habitat (pages 4-106 and 4-107, Plates 3-10 and 4-1).

7) Des-Bee-Dove/Wilberg Haul Road

This road will be left in place during the first five years of the reclamation period to provide access to the sediment pond. At the time of sediment pond removal, the road will also be reclaimed. The asphalt surface will be removed and buried with at least four feet of inert material at the north end of the road. All culverts will then be removed and the drainages restored. The road will then be backfilled and graded with material displaced during its construction and revegetated (pages 4-7, 4-8, 4-9, 4-126, and 4-127).

8) Sediment Pond

Removal of the sediment pond will take place five years after the start of the reclamation period. The pond will first be drained and allowed to dry. It will then be broken down and backfilled to achieve the original contour of the area and reestablish the original drainage (pages 4-88, 4-89, and Plate 4-1).

The entire disturbed area will be graded and all earthen structures except the tipple pad filled or reduced to achieve approximate original contour. All highwalls (Beehive/Little Dove Area, Deseret Portal Area, and Bathhouse/Warehouse/Parking Area) will be completely eliminated and depressions will be filled. Only the Portal Access Road will be left, and it will be in a broken and roughened condition. As has

been mentioned, the Portal Access Road, as reclaimed, will serve as a cattle trail to East Mountain, constituting an enhancement of the postmining land use of grazing and wildlife habitat (Plate 4-1).

A slope stability analysis of the bathhouse/warehouse fill was performed in August of 1990 by the firm of Chen Northern, Inc. (Appendix III). The stability analysis done by Chen Northern determined the relevant characteristics of the fill material (page 4-91) and used these in a standard rotational (Bishop's Method of Slices) failure model. The static factor of safety for a 2h:1v slope was found to be at least 1.74. Since no reclaimed slope will be steeper than 2h:1v, the static factor of safety for all grading and backfilling should be at least 1.74, which compares very favorably with the required value of 1.3 (533.130).

Material used in backfilling will be minus 3 inches. Material will be placed in 18-inch lifts and compacted in constructing the fills (page 4-90). The factor of safety is acceptable, and the foundation of all fills is and will be solid bedrock. The stability of all postmining slopes meets the requirements for backfilling and grading.

COMPLIANCE

The permittee is in compliance with all sections of R614-301-500, except condition R614-301-514.300-(1) and R614-301-542.300-(1) (JK).

R614-301-700 HYDROLOGY (TM)

R614-301-710 Introduction

Existing hydrologic resources are discussed in Volume 9 (section R614-301-722) of the PAP. All springs have been identified, as well as, any perennial, intermittent or ephemeral drainage on Map HM-5. Groundwater is also discussed in Volume 9.

R614-301-711.300 General Requirements

The methods and calculations utilized to achieve compliance with hydrologic design criteria and plans required by R614-301-740 are found on pages 4-11 through 4-57 of the PAP.

R614-301-713 Inspection

Inspection of all sediment ponds will be conducted quarterly. A certified annual report will be submitted to the Division (page 3-53 of the PAP).

R614-301-720 Environmental Description

722.100 No subsurface water has been encountered in the mine and the mine was bounded by faults on either side of the permit area leaving the area basically devoid of any aquifers.

722.200 The location of surface water bodies such as streams, lakes, ponds, and springs can be found on Map HM-5, Volume 9.

722.300 The elevations and locations of monitoring stations used to gather baseline data on water quality and quantity in preparation of the application is found on Map HM-1 of the PAP. The only surface water monitoring station is UPDES monitoring point UT-0023591-001 as shown on Map HM-1. Spring 82-51 is monitored according to accepted Division Guidelines (Volume 9).

722.400 No water wells are known to exist in the permit area or adjacent area.

R614-301-724 Baseline Information

All information related to hydrologic baseline and operational data collection and sampling programs is delineated in Volume 9 of the PAP. The permittee has identified all surface and groundwater sampling locations, parameters sampled, and monitoring schedules in Appendix A of Volume 9 of the PAP.

R614-301-724.400 Climatological Information

Climatological information is described in Volume 9 of the PAP. The permittee maintains a rainfall gauge and weather station above the Des-Bee-Dove Mine as shown on Map HM-1. All data from the weather station is submitted quarterly to the Division. This includes rainfall, temperature, and humidity.

R614-301-724.500 Supplemental Information

All supplemental information regarding erosion control test plots and treatments are contained on pages 4-70 through 4-72. These plots were set up to ascertain what erosion control treatments would provide protection from erosion on Mancos Shale. In addition to the current test plots, the permittee proposes to develop some additional test plots adjacent to the existing test plots incorporating a variety of treatments and soil amendments. These test plots will help better define the use of various erosion control and planting techniques (see Reclamation Study Update dated February 15, 1991).

R614-301-724.600 Survey of Renewable Resource Lands

Discussion of renewable resources and damage due to subsidence addresses the potential for impact related to subsidence and indicates no impact will occur (page 4-149). No damage to renewable resources have been documented to date.

R614-301-725 Baseline Cumulative Impact Area Information

Necessary hydrologic and geologic information in Volumes 2 and 9 of the PAP, addresses the Cumulative Impacts on the Hydrologic Balance for the Des-Bee-Dove Permit Area.

Increase in TDS (primarily sodium, calcium magnesium, bicarbonate, and sulfate, and TSS will occur and possible diminution of spring flow due to subsidence-related effects were the two impacts identified in the initial permit issued on June 20, 1985 (see CHIAS, Appendix I).

On going water monitoring is discussed in the current PAP in regards to the spring monitoring in Volume 9. It was interpreted in the initial permit review that monitoring of springs would provide the necessary documentation to determine the effects of subsidence. Spring 82-51 will be monitored during the months of July through October and raw data submitted quarterly as referenced in Volume 9.

Reclamation studies are in progress to better define the best erosion control methods and water harvesting methods to achieve reclamation success.

R614-301-727 Alternative Water Source Information

The discussion regarding water replacement is acceptable in that the PAP provides enough detailed information on existing water rights to identify the ownership of springs identified within the permit area as shown in Table HT-4. Any loss or adverse occurrence to water rights will be reported to the Division within ten days and then meet the applicant with the Division to determine the necessary course of action.

R614-301-728 Probable Hydrologic Consequences (PHC) Determination

The PHC makes certain findings regarding the hydrologic balance, acid- or toxic-forming materials, sediment yield, water quality, flooding, and other characteristics as determined by the Division.

The original permit issued by OSM determined that the "reclamation of the Haul Road will involve removal of all culverts. Material from culvert excavation will be used to cover the remaining road sections. The ephemeral stream channels will be returned to their original condition" (OSM's Technical Analysis, Hydrologic Balance -

Surface Water, page 13). The reclamation of the Des-Bee-Dove Mine site and Haul Road are the current major issues being reviewed regarding Hydrologic Consequences. No real analysis was made regarding the long-term stability of the road reclamation and its impact on surface water in the original permit.

728.200 The PHC determination is based on baseline hydrologic geologic and other information collected for the permit application and includes data statistically representative of the site.

A determination was made in the original permit approval that reclamation could be achieved without material damage to the hydrologic balance outside the permit area (Technical Analysis, OSM, 1985). Many concerns regarding reclamation of the Des-Bee-Dove Haul Road have been raised since the operation of the haul road and subsequent erosion of hillslopes have become a major issue in regards to the success of the haul road regrading and reclamation. To date, no data has been submitted to the Division from test plots involving the proposed reclamation study submitted to the Division February 22, 1991. There is very little documentation which demonstrates that successful reclamation on Mancos Shale (i.e., haul road) can be achieved. The original permit became effective on June 20, 1985 and the original Des-Bee-Dove Haul Road was constructed in 1983 and not included in the original permit because it was considered a public road. No prior studies or baseline data were collected prior to construction of the road.

It is felt that at this point in time, the permittee has offered to use what the permittee considers to be the best techniques available regarding reclamation and stabilization of Mancos Shale as discussed on page 4-89 of the PAP. To date, no conclusive statements can be made on the appropriateness of these sediment control methods other than they have been tried and no data has been generated regarding their long term success or failure.

CONDITION R614-301-728-(1) (TM)

Within 45 days of permit renewal, the permittee must submit a detailed plan for inclusion in the PAP, as to how the following information from the proposed test plots will be achieved, based on the following requirements:

- 728.331 Predicted sediment yield from the reclaimed haul road area;
- 728.332 Acidity, total suspended and dissolved solids and other important water quality parameters of local impact from the impact of coal mining and reclamation operations; and
- 728.335 Characterizations required by the Division for the test plots which must include:

- 1) Application methodology assessment for hydromulch (i.e., treatment method-soil prewetted prior to application to allow for better absorption of stabilizers) and other treatments, implying different methods of application must be tried and evaluated;
- 2) Soil bed preparation (roughness of seedbed) in relation to erosion control; and
- 3) Runoff collection on test plots to determine water quality (i.e., TDS and TSS).

R614-301-730 Operation Plan

R614-301-731 General Requirements

The plan includes the measures to prevent, to the extent possible, additional contributions of suspended solids to streamflow within the mine area, not the haul road. Data from the test plots on the haul road have not been generated regarding success or failure of various types of erosion control. There are numerous culvert crossings and channel rebuilds planned along the remainder of the haul road (page 4-89). The permittee insists a prior Division approval is criteria for acceptance of the permittee's sediment control policy. This approval (i.e., Division letter dated November 27, 1985), however, was in reference to the Deseret sediment pond removal only.

The use of soil stabilizers, hydromulch, and contour furrows constitutes a conceptual requirement for treatment of one portion of the haul road and does not provide the Best Technology Currently Available (BTCA) for the remainder of the haul road that does not drain to the Deseret Sediment Pond.

CONDITION R614-301-731-(1) (TM)

Within 45 days of permit renewal, the permittee must submit technically adequate plans, for inclusion in the PAP, for sediment control (BTCA) on all areas not being treated by the sediment pond during reclamation. The PAP must include all sediment control measures and siltation measures with design criteria, cross-sections and maps as required by rule R614-301-742.110, Sediment Control Measures.

731.121 Surface water protection must be addressed in a comprehensive BTCA plan regarding the haul road reclamation. The main mine site must be treated by the sediment pond until it is approved for removal based in the requirements of R614-301-763, Siltation Structures.

CONDITION R614-301-731.121-(1) (TM)

Within 45 days of permit renewal, the permittee must submit a detailed BTCA plan as an appendix to the PAP which specifically addresses the following issues (this is required in addition to the current plan, to use contour furrows and berms as shown on Plate 4-1, sheet 3 of 5):

- 1) A plan for providing sediment control during construction and following construction of all stream crossings and culvert removal sites where permanent diversions will be installed;
- 2) A revised and upgraded plan for the contour furrows and berms as shown on Plate 4-1, sheet 3 of 5 to address the runoff storage capacity of these BTCA measures in relation to the 10-year, 24-hour storm runoff volume. This will verify the treatments' effectiveness in providing treatment for all areas not draining to the sediment pond. This must be included in a BTCA Appendix showing all areas treated with BTCA measures other than sediment ponds; and
- 3) The assessment of the runoff water quality must be included as a design criteria for the test plot study. The data must be interpreted and included as part of the BTCA appendix upon submittal following test plot implementation. The plan must identify the surface water quality and quantity parameters to be monitored, sampling frequency and site location.

R614-301-731.200 Water Monitoring

The permittee currently monitors one spring 82-51, T17S R7E S26, WR #93-1605-F.S., shown on Map HM-5, Volume 9. In addition to this spring, the permittee monitors the sediment pond using discharge permit #UT-0023591; expiring October 31, 1992, as described in Volume 9 of the PAP. Since all drainage is ephemeral in nature and the sediment pond sits below all mine site disturbance, it becomes the sole monitoring point of significance. A detailed BTCA plan discussing monitoring locations, sampling frequency and parameters will be submitted as part of the conditional response to R614-301-731.121.

R614-301-731.300 Acid- and Toxic-Forming Materials (TM & HS)

All acid- and toxic-forming materials will be properly identified and treated when necessary as discussed on page 4-90 of the PAP.

Waste rock disposal plans and the reclamation plans are described for the old (now reclaimed) Cottonwood/Wilberg Waste Rock Storage Site in Appendix V. If a

coal mine activities resume, a roof and floor sampling plan approved by the Division and implemented. All future waste rock and sedimentation pond waste will be disposed of in the New Cottonwood/Wilberg Waste Rock Facility (pages 3-28 and 3-55).

The permittee has committed to covering all acid- and/or toxic-forming materials with at least four feet of nonacid- and nontoxic-forming materials or disposing of said material in an approved disposal facility within a permitted area (page 4-69).

Subsequent to facility demolition and prior to backfilling and grading, the permittee will conduct a soil/spoil sampling program to identify acid- and/or toxic-forming materials. Sampling methods and techniques will follow the procedures outlined on pages 4-100 through 4-102. If analysis indicate the presence of acid- and/or toxic-forming materials, additional sampling will be conducted.

731.400 No wells have been identified within the permit area.

731.500 No discharges are permitted within the permit area.

731.521 All portal seals are designed to prevent gravity discharges from the mine.

731.600 Stream Buffer Zones are not applicable to this PAP, due to the fact that all drainage is ephemeral in nature.

731.700 All water diversions are shown on certified Plate 3-11 for the main mine site. All storm water impoundment drawings are shown in Appendix VIII.

731.730 A map showing locations and elevations of each surface water station used for monitoring, shown on Map HM-5 and HM-1 is not certified.

731.740 Map HM-5 which shows the location of the Des-Bee-Dove Sediment Pond is not certified.

731.750 Cross-sections found in Appendix VIII of the PAP which show the cross-sections of the sediment pond are not certified.

CONDITION R614-301-731.700-(1) (TM)

Within 45 days of permit renewal, the permittee must submit certified cross-sections of the sediment pond and certify maps HM-1 and HM-5 per the requirements identified in R614-301-731.730, R614-301-731.740 and R614-301-731.750.

731.800 Water Rights and Replacement

The permittee has provided a statement which commits to replace any water determined to be lost or adversely affected as a result of the permittee's mining operations (page 4-156 of the PAP).

R614-301-740 Design Criteria and Plans

R614-301-742 Sediment Control Measures

The permittee has addressed what sediment control measures will be implemented for the mine site on areas not draining to the sediment pond (page 3-40 of the PAP and shown on Plate 3-7, sheet 3 of 3). The total drainage area of 1.24 acres was calculated. Monitoring and sampling will be completed as delineated on page 3-40.

The remainder of the mine site and the surrounding area is treated by the sediment pond as shown on Plate HM-1.

The permittee provided a plan for implementing test plots as described in Des-Bee-Dove Haul Road Reclamation Study to verify the success of reclamation methodologies on the reclaimed road.

R614-301-742.220 Sedimentation Ponds

The sediment pond was designed to contain treat the 10-year, 24-hour precipitation event. The pond is decanted down to the decant elevation of 6757.0 after a 24-hour detention time is maintained by a non-clogging dewatering device as shown in Appendix VIII. All calculations, drawings, and cross-sections of the sediment pond are contained in Appendix VII and VIII, and discussions are included on pages 3-53, 3-54 and 3-55 of the PAP.

The permittee appears to be in compliance with this rule but needs to supply the following additional information to clarify the plan and to confirm compliance.

CONDITION R614-301-742.220-(1) (TM)

Within 45 days of permit renewal, the permittee must provide drawings in Appendix VIII that provide consistent information regarding the sediment pond. Three as-built drawings in Appendix VII provide three different pond bottom elevations. Page 3-54 of the PAP states five feet of clearance between a full sediment load elevation and the decant elevation. None of this information is in agreement (drawing #01-52-1-015 was revised on February 24, 1989 and October 1, 1984, to show as-built plans).

In addition to accurate as-built drawings and cross-sections being provided, the following information must also be submitted:

- 1) Sediment levels and clean-out elevations marked on all cross-sections (cross-sections are not marked as-built and certified);
- 2) Decant and clean-out procedures and a sediment testing and storage plan per Division guidelines;
- 3) A discussion of how sediment levels are determined to meet the 60% clean-out elevation determination; and
- 4) Calculations to prove that the open channel spillway is of nonerodible construction and capable of maintaining sustain flows. Riprap sizing calculations for the spillway must be included in Appendix VIII.

R614-301-742.300 Diversions

Diversions have been constructed on the main mine site property to minimize adverse impact to the hydrologic balance. Drawings (Plate 3-8 sheet 1 of 2 and 2 of 2) and discussions found in Appendix VII do not currently include any calculations for the existing hydrologic structures at the Des-Bee-Dove Mine Site.

CONDITION R614-301-742.300-(1) (TM)

Within 45 days of permit renewal, all hydrologic calculations for existing hydrologic structures at the Des-Bee-Dove Mine site must be submitted for inclusion in the PAP.

COMPLIANCE

The permittee is in compliance with all sections of R614-301-700, except conditions R614-301-728-(1), R614-301-731-(1), R614-301-731.121-(1), R614-301-700-(1), R614-301-742.220-(1), and R614-301-742.300-(1) (TM).

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